

138482-2

IN THE CLAIMS

1. (Currently Amended) A method of producing cumene hydroperoxide comprising: reacting in a series of oxidation reactors oxygen with cumene by passing the oxygen through a water-cumene emulsion by continuous aqueous emulsion oxidation in a series of oxidation, wherein the process is conducted in the presence of a mixture of an aqueous solution of an ammonium salt of an organic acid or a carbonic acid with a concentration of 0.001-0.5 mass % based upon a total mass of the aqueous solution of the ammonium salt and an aqueous solution of ammonia with a concentration of 0.001-0.5 mass % based upon a total mass of the aqueous solution of the ammonia, which wherein the mixture is fed into each oxidation reactor of the series of oxidation reactors in an ammonia: ammonium salt mass ratio of between 1:100 to 100:1.
2. (Currently Amended) A method according to claim 1, wherein the method process is conducted at a temperature of 100-120° C. in the first oxidation reactor of the series of oxidation reactors with a gradual decrease to 80-90° C. in the last oxidation reactor of the series of oxidation reactors and at a gage pressure of up to 5 atm.
3. (Currently Amended) The method according to claim 1, further comprising forming wherein the ammonium salt is formed by reacting carbon dioxide with ammonia in the presence of an aqueous feed stream for one of the oxidation reactors of the series of oxidation reactors.
4. (New) The method according to claim 1, wherein the ammonium salt is selected from the group consisting of ammonium bicarbonate, ammonium carbonate, ammonium carbamate, or a mixture thereof.
5. (New) The method according to claim 1, wherein the ammonia: ammonium salt mass ratio is 1:10 to 10:1.

138482-2

6. (New) The method according to claim 1, wherein the oxygen is from air.

7. (New) A method of producing cumene hydroperoxide comprising:  
reacting in a series of oxidation reactors oxygen with cumene by passing the oxygen through a water-cumene emulsion in a presence of a mixture of an aqueous solution of an ammonium salt with a concentration of 0.001-0.5 mass % based upon a total mass of the aqueous solution of the ammonium salt and an aqueous solution of ammonia with a concentration of 0.001-0.5 mass % based upon a total mass of the aqueous solution of the ammonia, wherein the mixture is fed into each oxidation reactor of the series of oxidation reactors in an ammonia:ammonium salt mass ratio of 1:10 to 10:1, wherein the method is conducted at a temperature of 100-120° C in a first oxidation reactor of the series of oxidation reactors with a decrease to 80-90° C in a last oxidation reactor of the series of oxidation reactors and at a gage pressure of up to 5 atm, and wherein the ammonium salt is selected from the group consisting of ammonium bicarbonate, ammonium carbonate, ammonium carbamate, or a mixture thereof.